



FACT SHEET



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Joint Composite Tracking Network

INTRODUCTION

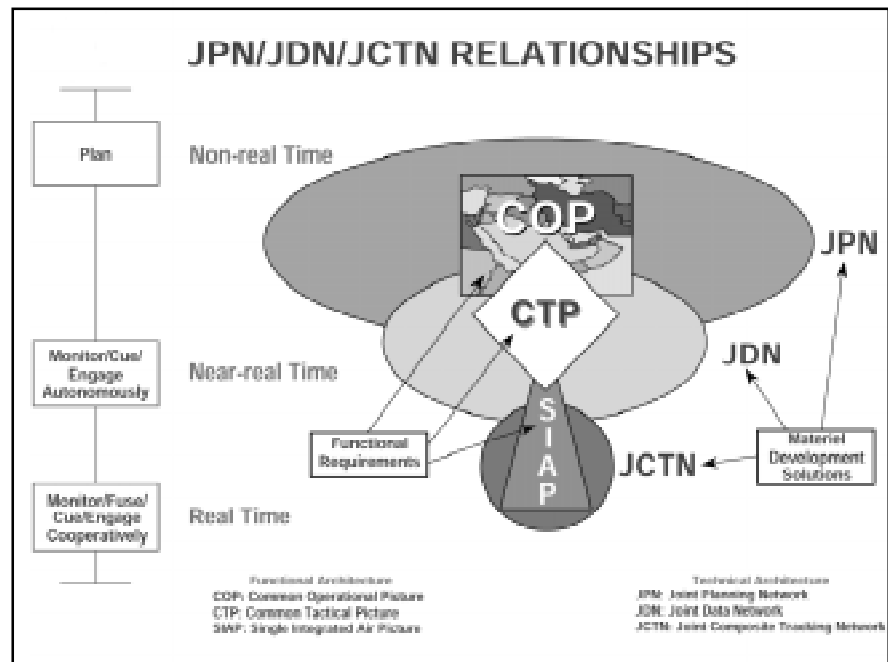
The Joint Theater Air and Missile Defense (JTAMD) Master Plan provides for a series of networks to assist the warfighter. The three part system begins with a large-scale capability, narrows down to the tactical level, then focuses on the actual battlespace. The first system is the Joint Planning Network (JPN), a non-real time global command and control system. The second system is the Joint Data Network (JDN), a near-real time network of communications-electronics systems and space based early warning information in the theater of operations. The third is the Joint Composite Tracking Network (JCTN), a real time joint telecommunications network and processing capability that enables composite tracking among a joint, heterogeneous mix of sensors and supports cooperative engagement of targets by weapons systems.

OBJECTIVES

The JTAMD Master Plan identifies four primary objectives: (1) creation of a single integrated air picture (SIAP); (2) early detection, classification, and identification of all objects in the aerospace surveillance volume; (3) defense in depth; and (4) 360 degree coverage. JCTN helps meet these objectives and provides numerous benefits for cruise missile and air defense, as well as theater missile defense (TMD).

JCTN TECHNIQUE

The JCTN is a real-time, sensor fusion system which distributes and fuses sensor measurement data into composite tracks that create a high fidelity, coherent air picture. The JCTN is a key technical enabler in the formation of a SIAP. It is likely that a JCTN would aid significantly in developing a consistent technical picture and may support advanced employment concepts such as Air Directed Surface to Air Missiles (ADSAM), Air Directed Air to Air Missiles (ADAAM), and Joint Engagement Zones (JEZ). The JCTN is a concept rooted in the Navy's experience with Cooperative Engagement Capability (CEC). It includes common software and a communications element that allow participating units to share and fuse sensor data. The processing architecture of the JCTN consists of two elements: (1) a common kernel function that is the



JCTN TECHNIQUE [CONTINUED]

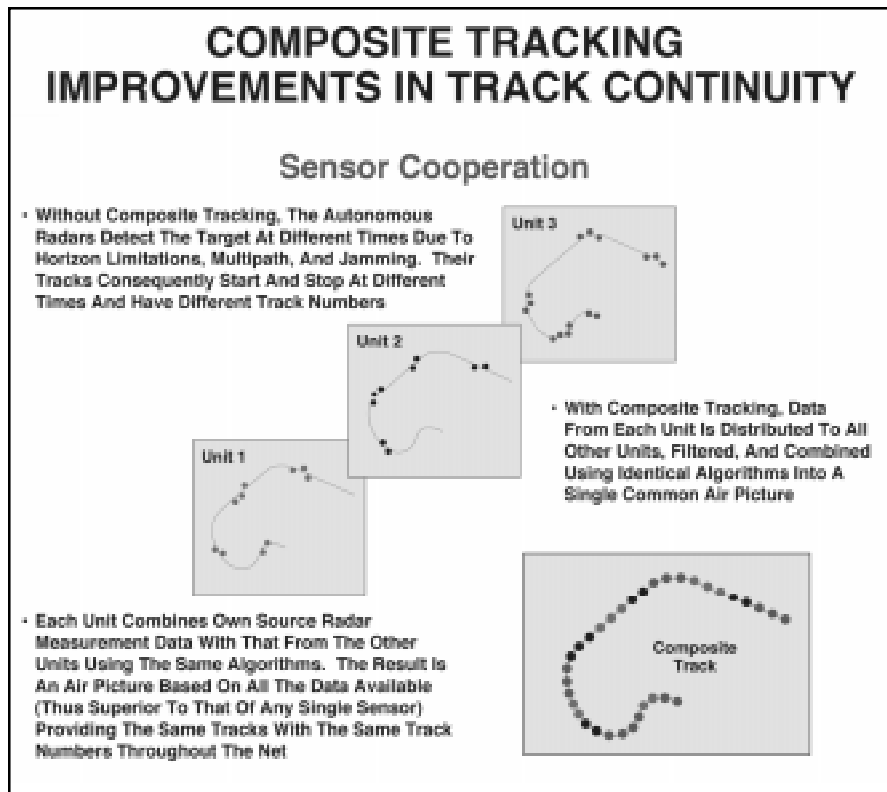
same in all locations and; (2) a unique adaptive layer to link the common kernel with the respective host sensor, weapon, or battle management system. The communications structure as currently envisioned includes wideband line-of-sight communications, satellite links and other communications systems.

BENEFITS TO THEATER AIR AND MISSILE DEFENSE

JCTN provides an accurate, resolved, consistent real-time air and theater ballistic missile picture. It does this because the same sensor data are processed virtually identically and simultaneously by all participants. Also, joint composite tracking by JCTN provides better track accuracy, continuity, and common identification of objects in the battlespace.

There are three primary technical features of a JCTN:

- Sensor Measurement Data Fusion
- Composite Formation of Tracks
- Engage on Remote Capability



JCTN STATUS

The Phase II Joint Composite Tracking Network Study was conducted from 1996 through the end of 1997. The Study's primary concern was engineering feasibility, although it also examined the benefits of JCTN to the JTAMD Master Plan in order to formulate a proposed roadmap for the integration of systems into JCTN. The Study concluded that a JCTN concept that meets JTAMD objectives can be defined and is technically feasible. Furthermore, analyses demonstrated numerous benefits for cruise missile and air defense, and similarly for theater ballistic missile defense (TBM) sufficient to justify the continued development and demonstration of a JCTN joint force capability.

Beginning in FY98, using the Cooperative Engagement Capability (CEC) system as a surrogate for full JCTN capability, BMDO has pursued the integration of CEC into various TAMD systems. These efforts are assisting the community in the demonstration and development of requirements regarding the benefits that result from Joint Family of Systems JCTN technology. BMDO is funding the preliminary demonstration and integration of CEC and Patriot, and CEC and the THAAD Radar. BMDO is also involved with efforts to integrate CEC on the test AWACS (called TS-3), JLENS, SBRIS (Low), and SATCOM Range Extension. An OSD decision on going forward with these integration efforts will be made in early FY02. BMDO has developed Technical Requirements Documents (TRD) for the JCTN and the JCTN/JDN Gateway functions, which serve as a methodology for collecting and disseminating Joint technical approaches to this technology. These efforts all support attempts to demonstrate advanced concepts like the Air Directed Surface to Air Missile, Air Directed Air to Air Missile, and Joint Engagement Zones.

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